

(No Model.)

3 Sheets—Sheet 1.

J. MATTHEWS, Dec'd.

E. and G. MATTHEWS Executors.

COMBINED VENT AND SAFETY VALVE FOR BOTTLING MACHINES.
No. 305,525.

Patented Sept. 23, 1884.

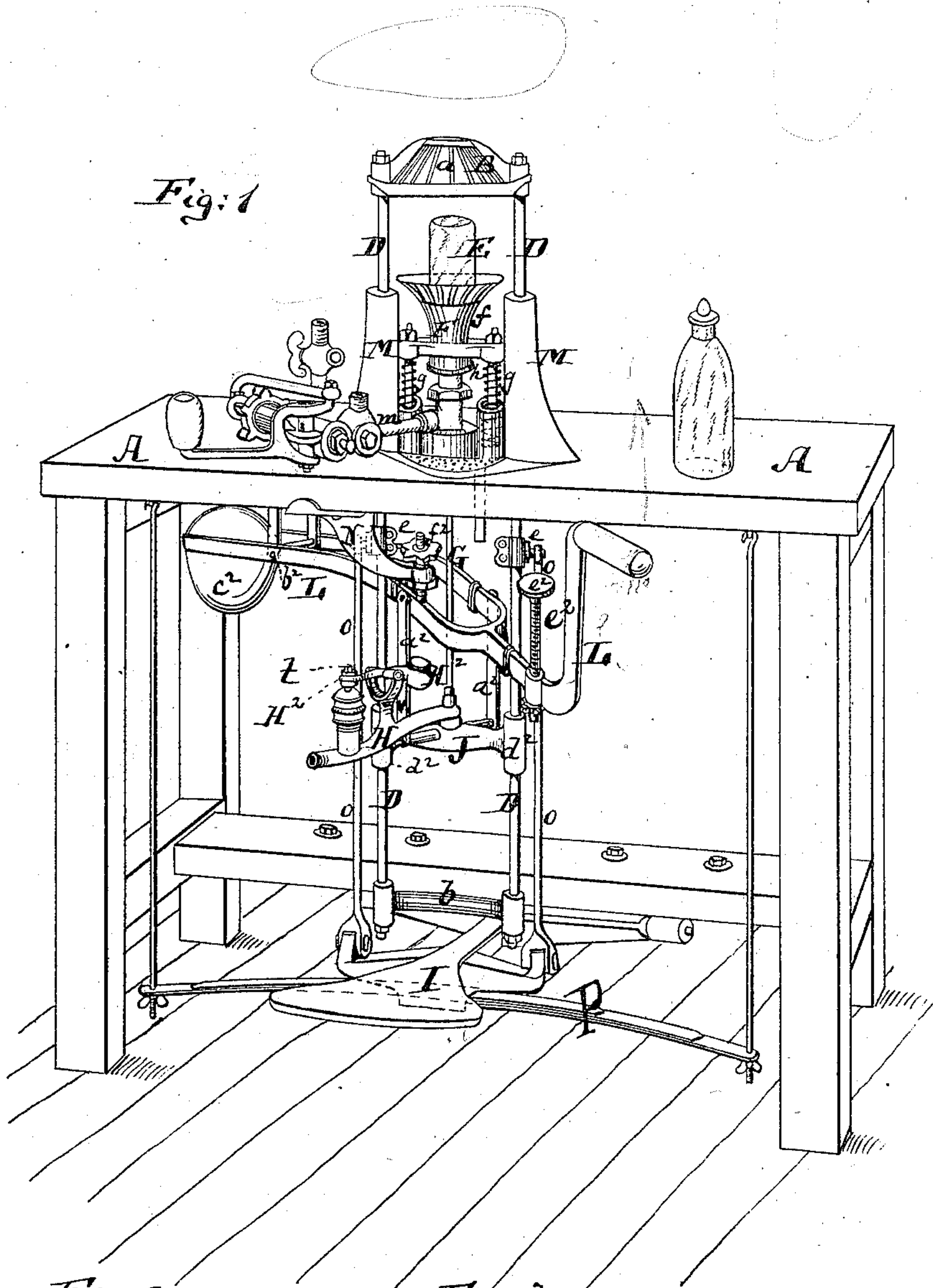


Fig: 2

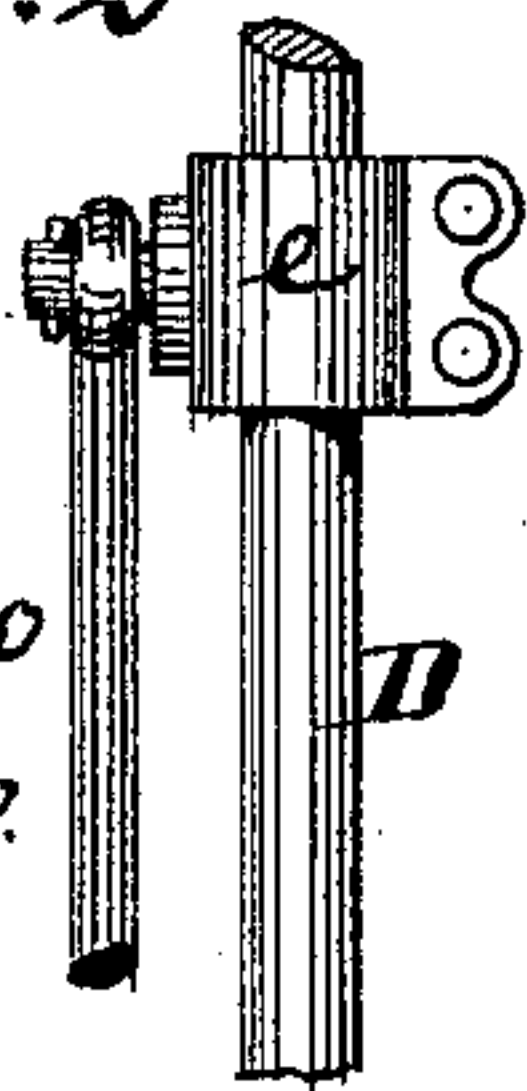


Fig: 3

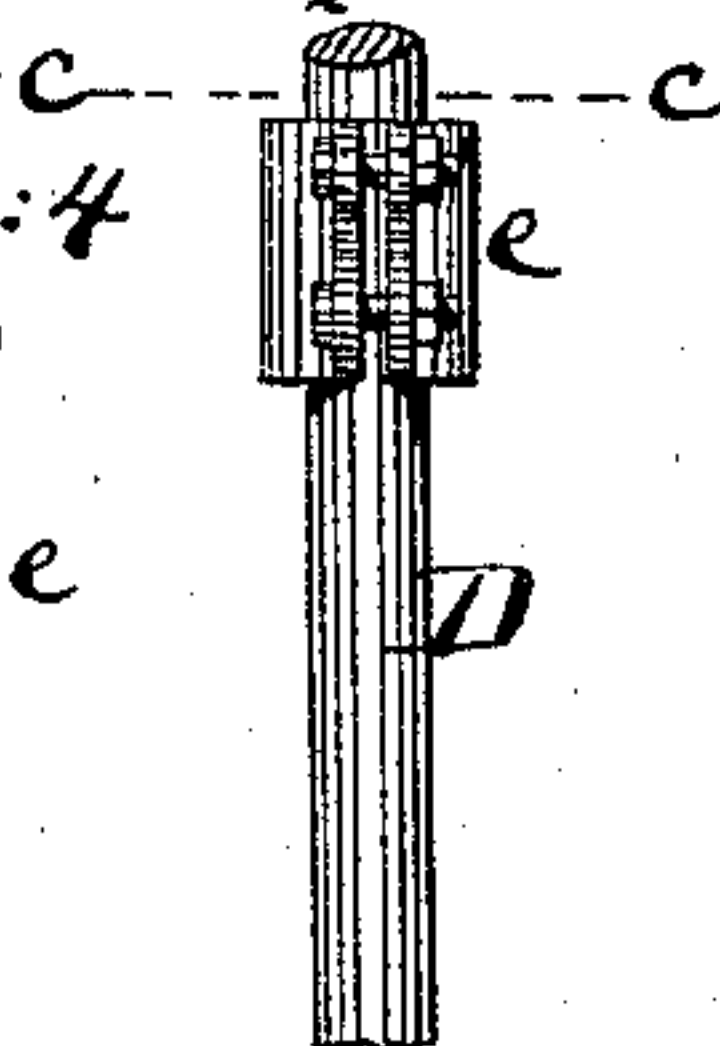
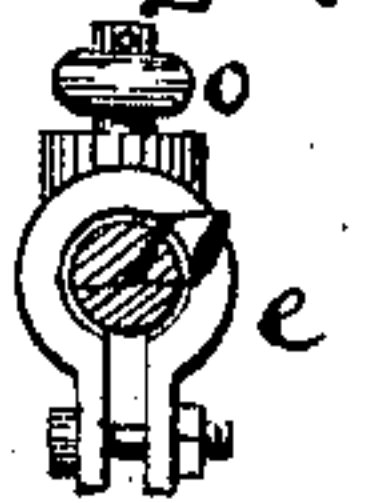


Fig: 4



Witnesses:
John M. Speer. 0
August Schlarbaum.

Inventors:
Elizabeth Matthews
George Matthews
Executors of John Matthews
deceased
by their attorneys
Brienen & Steel

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3 Sheets—Sheet 2.

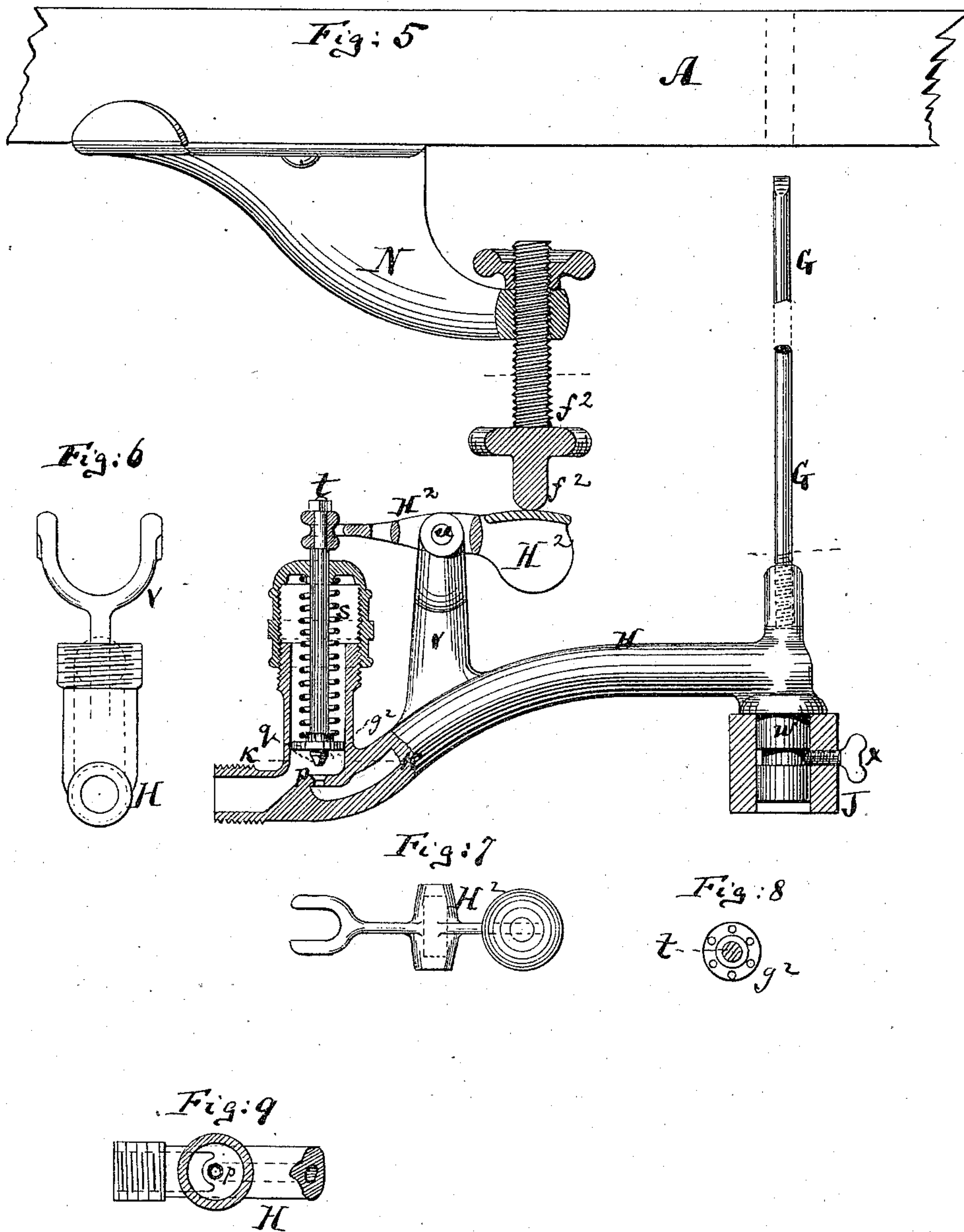
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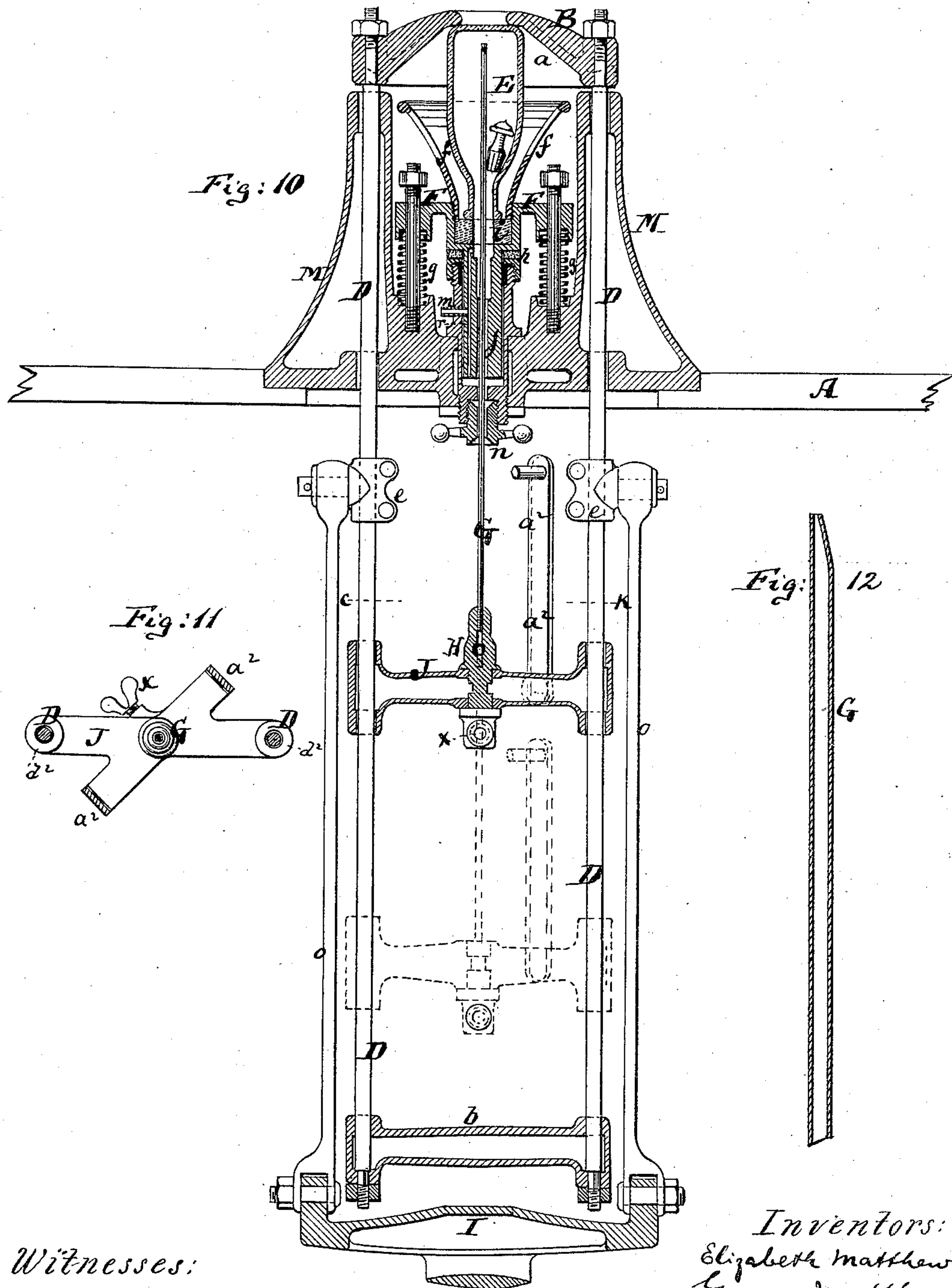
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UNITED STATES PATENT OFFICE.

ELIZABETH MATTHEWS AND GEORGE MATTHEWS, OF NEW YORK, N. Y.,
EXECUTORS OF JOHN MATTHEWS, DECEASED.

COMBINED VENT AND SAFETY VALVE FOR BOTTLING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 305,525, dated September 23, 1884.

Application filed December 14, 1883. (No model.)

To all whom it may concern:

Be it known that JOHN MATTHEWS, late of the city of New York, in the county and State of New York, during his lifetime did invent
5 an Improved Combined Vent and Safety Valve for Bottling-Machines, of which the following is a complete specification, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of a bottling-
10 machine containing the invention of the late JOHN MATTHEWS. Fig. 2 is a detailed side view, on an enlarged scale, of part of the rod for drawing down the cap which holds the bottle in place. Fig. 3 is an edge view of the
15 same; Fig. 4, a cross-section on the plane of the line *c c*, Fig. 3. Fig. 5 is an enlarged sectional side view of the attachment below the table of the bottling-machine. Fig. 6 is an end view of the lower part of the valve-chamber, which is shown in Fig. 5, the valve-spindle being removed. Fig. 7 is a top view of the
20 lever that connects with the valve-spindle. Fig. 8 is a top view of the valve proper, that is shown in Fig. 5. Fig. 9 is a horizontal section on the plane of the line *k k*, Fig. 5. Fig.
25 10 is a vertical cross-section of the whole machine. Fig. 11 is a horizontal section taken on the plane of the line *c k*, Fig. 10. Fig. 12 is an enlarged vertical section of the upper
30 part of the vent-tube.

This invention relates to certain improvements on bottling-machines of the kind indicated in Letters Patent No. 260,765, that were
35 granted to the late John Matthews, July 11, 1882, having for its object to adapt such a bottling-machine to the filling of bottles containing internal gravitating stoppers. Such bottles are best filled in an inverted position, with their mouths down, provision being made for
40 holding the internal stoppers out of the way during the act of filling.

The present invention consists in combining, with the mechanism that holds the bottle in an inverted position securely in place, a vent-
45 tube which enters the bottle from below and reaches nearly to its closed upper end, and which serves to carry away the surplus gas or air that may be contained in the bottle, and

permits the liquid to enter the bottle and to fill it to the proper extent.

The invention also consists in new mechanism for moving the vent-tube and the other parts of the bottling apparatus, as hereinafter more fully described.

In the drawings, the letter A represents the
55 table of the bottling apparatus.

B is the upper cross-head, which in this case also contains in its central portion a screen, *a*, for pressing on the upper end of the inverted bottle. The upper cross-head, B, is carried by
60 vertical rods D D, which reach downward through the table A and have their lower ends connected and properly braced by a cross-bar, *b*. These rods D are above the table A, guided in hollow posts M M, which are analogous to
65 the hollow post M of Letters Patent No. 260,765. In the lower part of the table is pivoted a treadle, I, which connects by rods *o* with sleeves *e*, that embrace the rods D beneath the table. These sleeves *e* are more clearly
70 shown in Figs. 2, 3, and 4, and are spring-clasps that embrace the rods D, and can be tightened onto them at varying heights, so that the machine can be adjusted to bring and
75 move the rods D and cross-head B downward, by means of the treadle, to a greater or less extent, for the purpose of adapting the machine to the filling of shorter or longer bottles.

The bottle E to be filled is, in inverted position, placed into a cup-like screen, *f*, which is supported on a cushioned slide, F, that rests on springs *g* and packing-ring *h*, as shown in
80 Fig. 10. The mouth of the bottle E bears on a cushion, *i*, which is contained in the lower part of the screen *f*, all as shown in Fig. 10, so that when the treadle I is depressed and the rods D taken hold of and pulled down the screen *a* will crowd the bottle against the
85 packing-ring *i*, any excess of pressure which may occur during this movement being taken up by the springs *g* and cushion *h*, which render the part F self-adjusting. The central portion of the slide F is in form of a downwardly-extending tube, which enters into the
90 tubular socket *j*, which projects upward from

the table A, as shown in Fig. 10, and which, at its upper end, carries the packing-ring *h*. The liquid (which for these purposes is usually aerated) with which the bottle is to be filled is supplied by a tube, *m*, to a space which surrounds the tube *j*, which space communicates with a passage, *r*, which is indicated in Fig. 10, and which extends lengthwise through the body of the tube *j*, and terminates at its upper end in the bore of said tube *j*, which communicates with the contents of the bottle E.

G is an upright vent-tube, which enters from beneath the bore of the tube *j*, and reaches high enough to bring its upper end nearly to the bottom of the inverted bottle, as indicated in Fig. 10. This upper end of the tube G, which tube is more clearly shown in Fig. 12, has a small opening for the purpose of allowing the air to escape from within the bottle E. The lower end of the tube G is secured, as appears more clearly from Fig. 5, to a hollow bracket, H, which has a valve-seat, *p*, that is closed by a valve, *q*, whenever a spring, *s*, is at liberty to press this valve down upon its seat. The spindle *t* of the valve *q* is at its upper part, where it projects beyond the valve-chamber, grasped by the fork of a lever, H², which lever is pivoted at *u* to a post, *v*, that projects from the hollow bracket H. The hollow bracket H, by a downwardly-projecting nipple, *w*, and by a screw, *x*, or by equivalent connection, is secured in a metallic frame, J, which, by straps or bars *a*², is suspended from a lever, L, that is pivoted at *b*² to the table A. The lever L is weighted, as shown at *c*².

The frame J may, if desired, be, and by preference is, provided with vertical guide-tubes *d*², through which the rods D pass. This arrangement gives the framing J, and bracket H and the tube G, that are connected with said framing, a vertical movement whenever the lever L is swung on its pivot, so as to raise or lower said framing and said parts that are joined thereto. The lever L carries an upright screw, *e*², which can be adjusted to project to a greater or less distance from the body of the lever, and which, when the lever is swung up, strikes the under side of the table A or any fixed projection thereon, thereby limiting the extent of the upward movement of the lever L.

N is a bracket attached to the under side of the table A, and carrying a screw, *f*², which is aligned with the lever H², so that it will strike said lever, in the manner shown in Fig. 5, whenever the lever L is carried up.

The operation of the machine is as follows: The bottle, containing an internal gravitating stopper, is first placed in inverted position into the screen *f*, so that the tube G, when afterward raised, will enter the bottle and push the stopper away from the mouth of the bottle. The treadle I is then depressed, so as to draw down the rods D and cause the screen *a* to bear upon the bottom of the bottle, as in

Fig. 10, crowding the bottle tightly upon its seat *i*. The cock in the supply-pipe *m* can now be opened to allow water, aerated or otherwise, or other liquid, to flow into the bottle; but the valve *q* being at this time still closed, no air-vent is provided for the discharge of air from the bottle, and the flow of liquid into the latter will consequently not be of long duration, nor will it serve to fill the bottle. At this stage the lever L is lifted until the top of the screw *e*² strikes the table A, at which time the lever H² will come in contact with the screw *f*² and cause the valve *q* to be raised. The flow of liquid into the bottle will now continue, and whatever air or superfluous gas may be contained in the bottle E will escape through the pipe G and hollow bracket H, and through the open valve-seat *p*. When the bottle has been properly filled, the lever L is lowered, and will resume its normal position under the influence of its own weight and that of the spring *s*, which spring at the same time closes the valve *q*. The treadle is now also let go, so that the guard *a* will again ascend under the influence of the treadle-spring P, thus releasing the bottle and allowing it to be lifted off. So soon as the tube G is lowered by lowering the lever L, it leaves the bottle E, and allows the gravitating stopper therein contained to drop into the mouth of the bottle and properly close it. If the attendant should leave the lever L up an undue time, so that perchance some of the water or liquid should escape from the bottle through the vent-pipe G, and enter the valve-chamber that surrounds the valve-spindle *t*, it will, as soon as the valve *q* is closed, be able to escape through apertures that are formed in the valve-disk *g*², as more clearly indicated in Fig. 8. A stuffing-box, *n*, surrounds the pipe G where it enters the tube or socket *j*, and prevents leakage around said pipe G.

We claim—

1. The combination of the treadle I with the rods *o*, adjustable sleeves *e*, rods D, and screen *a*, substantially as and for the purpose herein shown and described.

2. The combination of the slide F, having supply-passage *r* and lower supporting-cushion, with the screen *f*, supply-pipe *m*, vent-tube G, vertically-movable screen *a*, and means for operating the vent-tube G, substantially as specified.

3. The lever L, combined with the frame J, hollow bracket H, having valve *q*, lever H², abutment *f*², support for the same, and tube G, for operation substantially as specified.

4. The lever L, combined with the screw *e*², frame J, hollow bracket H, having valve *q*, lever H², abutment *f*², bracket N, and vent-pipe G, substantially as and for the purpose described.

5. The combination of the table A with the treadle I, rods *o*, sleeves *e*, rods D, screen *a*, screen *f*, slide F, tube G, hollow bracket H, valve *q*, lever H², frame J, and lever L, sub-

stantially as and for the purpose herein shown and described.

6. In a bottling-machine, the vent-pipe G, combined with mechanism, substantially as described, for lifting it, and mechanism, substantially as described, for opening it when lifted and closing it when lowered, substantially as specified.

This specification of the invention of the said JOHN MATTHEWS, deceased, signed by us on this 30th day of August, 1883.

ELIZABETH MATTHEWS.
GEORGE MATTHEWS.

Witnesses:

EMILY MATTHEWS,
GEORGE HEALY.